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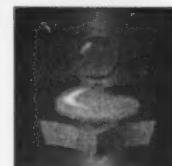
Educating Health Workers: Provincial Results

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**Culture, Tourism and the Centre for Education Statistics
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Rita Ceolin and Johanne Plante
Statistics Canada

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Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

Acronyms

The following acronyms are used in this publication:

ACHDHR	Advisory Committee on Health Delivery and Human Resources
AETS	Adult Education and Training Survey
CAAT	Colleges of Applied Arts and Technology
CAPLA	Canadian Association for Prior Learning Assessment
CASN	Canadian Association of schools of Nursing
CEGEP	Collège d'enseignement général et professionnel
CIHI	Canadian Institute for Health Information
CNA	Canadian Nurses Association
CIP	Classification of Instructional Programs
CV	Coefficient of variation
FMM	First Ministers' Meeting
FOG	Follow-up of Graduates Survey
HEAL	Health Action Lobby
HHR	Health Human Resources
HHRE	Health Human Resources and Education
HPDB	Health Personnel Database
IALSS	International Adult Literacy and Skills Survey
LSIC	Longitudinal Survey of Immigrants to Canada
M.D.	Medical Doctor
NAFTA	North American Free Trade Agreement
NAICS	North American Industrial Classification System
NGS	National Graduates Survey
NOC-S	National Occupational Classification – Statistics
OECD	Organisation for Economic Co-operation and Development
PLAR	Prior Learning Assessment and Recognition
PSIS	Postsecondary Student Information System
R&D	Research and development
RN	Registered Nurse
SOC	Standard Occupational Classification
UCASS	University and College Academic Staff System
USIS	University Student Information System
WES	Workplace and Employee Survey
YITS	Youth in Transition Survey

Table of contents

Acknowledgement	4
Acronyms	5
Executive summary	11
Introduction	17
Section 1	
Interest of youth in health and health-related occupations	22
1.1 Occupational aspirations of youth	22
1.2 Characteristics of youth by occupation of interest	24
1.3 Loss of health aspirations between the ages of 15 and 17	28
Section 2	
Prior learning assessment and recognition (PLAR) of foreign credentials	86
2.1 Incidence of immigrants requesting PLAR within two years of immigrating to Canada	87
2.2 Characteristics of immigrants requesting PLAR at a postsecondary institution	89
2.3 Reasons why immigrants did not request PLAR at a postsecondary institution within two years of immigrating to Canada	92
Section 3	
Full-time faculty in university health education programs	121
3.1 Characteristics of full-time university faculty teaching principally a health-related subject	121
3.2 Work conditions of full-time university faculty teaching principally a health-related subject	126
Section 4	
Students and graduates from university health education programs	180
4.1 Number of students enrolled in university health education programs	181
4.2 Characteristics of students enrolled in health education programs	187
4.3 Number of graduates from university health education programs	193
4.4 University graduation rates and the distribution of university graduates across fields of study	196
4.5 Characteristics of graduates from health education programs	198
Section 5	
Graduates from health education programs and activities after study – Class of 2000	646
5.1 Characteristics of graduates from health education programs	646
5.2 Characteristics of health graduates' program of study	650
5.3 Student debt of graduates from health education programs	651
5.4 Pursuit of additional education	655
5.5 Transitions of health graduates into the labour market	655
5.6 Retention of health graduates in health occupations	657
5.7 Health graduates' earnings	658
5.8 Mobility of students and graduates from health education programs	658
5.8.1 Mobility to study	659
5.8.2 Mobility after graduation	660

Table of contents

Section 6	
Adults' literacy skills and ability to use information and communications technologies (ICT)	1018
6.1 Information and communications technologies (ICT) use and familiarity	1018
6.2 Literacy skills of adults from health occupations	1021
Section 7	
Continuing education in the workplace	1031
7.1 Characteristics of workplaces supporting continuing education	1031
Section 8	
Adults participating in continuing education	1040
8.1 Characteristics of adults participating in job-related training	1040
8.2 Participation rate of adults in job-related training	1043
Section 9	
Summary and concluding remarks	1133
References	1137
Appendices	
Appendix 1 Data sources and methodological notes	1141
Appendix 2 Occupational classifications	1151
Appendix 3 Classification of Instructional Programs	1155
Appendix 4 Classification of principal subject taught	1162
Appendix 5 North American Industrial Classification System	1164
Appendix 6 A focus on nursing	1167
Appendix 7 A distinction between "enterprise," "company," "establishment" and "location"	1169
Appendix 8 Health Human Resources and Education conceptual framework	1170
Endnotes	1171
Cumulative index	1172
List of Charts	
Chart 1.1 Youth interested in health occupations less likely to come from rural areas than youth overall	26
Chart 1.2 Youth interested in becoming physicians less likely to come from rural areas than youth overall	27
Chart 1.3 Despite the popularity of health occupations, many youth changed their minds between ages 15 and 17	29
Chart 2.1 Within two years of their arrival, about three-quarters of immigrants targeting health occupations requested PLAR	89
Chart 2.2 In Canada, seven in ten immigrants who were targeting health occupations and had requested PLAR at a postsecondary institution obtained full or partial recognition	92
Chart 3.1 Men generally dominate full-time university faculty	122
Chart 3.2 Full-time university faculty teaching principally a health-related subject are aging about 30% of them continue to work after age 55	124
Chart 3.3 Male university faculty in health-related subjects are generally older than their female counterparts	125
Chart 3.4 The average salary of full-time university faculty teaching principally a health-related subject was generally higher than in other fields	127
Chart 3.5 Full-time male university teachers in health tend to have a higher salary than their female counterparts	128

Table of contents

Chart 4.1	Variation in the relative size of health programs within the university system, 2005/2006	185
Chart 4.2	Women comprise the majority of health students, 2005/2006	188
Chart 4.3	International students account for a smaller proportion of the student body in health programs than in all programs, 2005/2006	191
Chart 4.4	The most populated provinces account for the vast majority of health graduates in Canada, 2005	195
Chart 4.5	Health graduates were generally older than the average, with some variation in their age structure across the provinces, 2005	199
Chart 5.1	Health graduates were generally more likely than their counterparts from other fields to be women	647
Chart 5.2	New Brunswick and Quebec were the only two provinces with a majority of health graduates reporting that they are able to conduct a conversation in French	649
Chart 5.3	Many provinces experienced substantial net losses due to mobility of university health students	660
Chart 5.4	Many provinces experienced substantial net losses due to mobility of university health graduates	663
Chart 6.1	Scores for ICT use and familiarity were substantially lower for adults from health occupations than for their counterparts from other occupations	1020
Chart 6.2	A majority of adults from health occupations had more than the "desired" level of competence in prose, document, numeracy and problem solving to acquire additional knowledge and skills throughout their lives	1022
Chart 7.1	Support for classroom training was higher in the health care and social assistance sector than in all other sectors	1033
Chart 8.1	A large proportion of adults from health occupations participated in formal job-related training	1041
Chart 8.2	Most participants in continuing education are women	1042
Chart 8.3	Participation rates were high for all age groups	1044

List of Tables

Tables 1.1.1 to 1.1.11	Relative popularity of health occupations among youth, by sex, Canada and provinces, 2000	30
Tables 1.2.1 to 1.2.11	Occupational aspirations of youth by type of occupation, Canada and provinces, 2000	52
Tables 1.3.1 to 1.3.11	Socio-demographic characteristics of youth by occupation of interest, Canada and provinces, 2000	63
Tables 1.4.1 to 1.4.11	Loss of health aspirations between age 15 and 17, by occupation of interest at age 15, Canada and provinces, 2000 and 2002	74
Tables 2.1.1 to 2.1.6	Distribution of immigrants by the occupation they wanted when they decided to immigrate to Canada, Canada and provinces, 2001	93
Tables 2.2.1 to 2.2.6	Immigrants' request for Prior Learning Assessment and Recognition (PLAR) at a postsecondary institution or other organizations within two years of immigrating, by the occupation they wanted when they decided to immigrate to Canada, Canada and provinces, 2003	99
Tables 2.3.1 to 2.3.6	Socio-demographic characteristics of immigrants requesting Prior Learning Assessment and Recognition (PLAR) at a postsecondary institution inside Canada within two years of immigrating, by the occupation they wanted when they decided to immigrate to Canada, Canada and provinces, 2003	105
Tables 2.4.1 to 2.4.6	Type of credential recognition given by postsecondary institution inside Canada to immigrants requesting Prior Learning Assessment and Recognition (PLAR) within two years of immigrating, by the occupation they wanted when they decided to immigrate to Canada, Canada and provinces, 2003	111

Table of contents

Tables 2.5.1 to 2.5.6	Reasons why immigrants did not have their credentials checked with a postsecondary institution in Canada within two years of immigrating, by the occupation they wanted when they decided to immigrate to Canada, Canada and provinces, 2003	114
Tables 3.1.1 to 3.1.11	Distribution of full-time university faculty by principal subject taught, Canada and provinces, 2004/2005	129
Tables 3.2.1 to 3.2.11	Socio-demographic characteristics of full-time university faculty by principal subject taught, Canada and provinces, 2004/2005	133
Tables 3.3.1 to 3.3.11	Age of full-time university faculty by sex and principal subject taught, Canada and provinces, 2004/2005	139
Tables 3.4.1 to 3.4.11	Level of highest earned degree of full-time university academic staff by principal subject taught, Canada and provinces, 2004/2005	150
Tables 3.5.1 to 3.5.11	Average number of years since full-time university academic staff have been appointed to the institution, by sex and principal subject taught, Canada and provinces, 2004/2005	156
Tables 3.6.1 to 3.6.11	Rank of full-time university academic staff by sex and principal subject taught, Canada and provinces, 2004/2005	162
Tables 3.7.1 to 3.7.11	Average salary of full-time university academic staff, by sex and principal subject taught, Canada and provinces, 2004/2005	173
Tables 4.1.1 to 4.1.11	Distribution of university students, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	202
Tables 4.2.1 to 4.2.11	Gender of university students, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	235
Tables 4.3.1 to 4.3.11	Age of university students of bachelor's and other undergraduate degrees by type of program, Canada and provinces, 2004/2005 and 2005/2006	268
Tables 4.4.1 to 4.4.11	Age of university students, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	290
Tables 4.5.1 to 4.5.11	Immigration status of university students, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	323
Tables 4.6.1 to 4.6.11	Citizenship of university students, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	356
Tables 4.7.1 to 4.7.11	Registration status of university students, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	389
Tables 4.8.1 to 4.8.11	Distribution of university graduates, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	422
Tables 4.9.1 to 4.9.11	University graduation rates by level of study and sex, Canada and provinces, 2004/2005 and 2005/2006	455
Tables 4.10.1 to 4.10.11	Distribution of university graduates by level of study, type of program and sex, Canada and provinces, 2004/2005 and 2005/2006	458
Tables 4.11.1 to 4.11.11	Gender of university graduates, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	491
Tables 4.12.1 to 4.12.11	Age of university graduates at the bachelor's and other undergraduates degree level, by type of program, Canada and provinces, 2004/2005 and 2005/2006	524
Tables 4.13.1 to 4.13.11	Age of university graduates at the graduate levels of study, by type of program, Canada and provinces, 2004/2005 and 2005/2006	546
Tables 4.14.1 to 4.14.11	Immigration status of university graduates, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	579
Tables 4.15.1 to 4.15.11	Citizenship of university graduates, by level of study and type of program, Canada and provinces, 2004/2005 and 2005/2006	612
Tables 5.1.1 to 5.1.12	Distribution of Class of 2000 graduates, by level of study and type of program, Canada, provinces and territories	664
Tables 5.2.1 to 5.2.12	Socio-demographic characteristics of Class of 2000 graduates, by level of study and type of program, Canada, provinces and territories	688

Table of contents

Tables 5.3.1 to 5.3.12	Age at graduation of Class of 2000 graduates, by level of study and type of program, Canada, provinces and territories	712
Tables 5.4.1 to 5.4.12	Language in which a conversation can be conducted upon graduation of Class of 2000 graduates, by level of study and type of program, Canada, provinces and territories	736
Tables 5.5.1 to 5.5.12	Characteristics of Class of 2000 graduates' program of study, by level of study and type of program, Canada, provinces and territories	760
Tables 5.6.1 to 5.6.12	Incidence and repayment of total loan among Class of 2000 graduates two and five years after graduation, by level of study and type of program, Canada, provinces and territories	784
Tables 5.7.1 to 5.7.12	Incidence and repayment of government student loans among Class of 2000 graduates two and five years after graduation, by level of study and type of program, Canada, provinces and territories	832
Tables 5.8.1 to 5.8.12	Class of 2000 graduates who pursued additional education after graduation, by level of study and type of program, Canada, provinces and territories	880
Tables 5.9.1 to 5.9.12	Employment status of Class of 2000 graduates two and five years after graduation, by level of study and type of program, Canada, provinces and territories	904
Tables 5.10.1 to 5.10.12	Type of occupation of Class of 2000 graduates employed five years after graduation, by level of study and type of program, Canada, provinces and territories	940
Tables 5.11.1 to 5.11.12	Retention in health occupations of Class of 2000 graduates five years after graduation, by level of study and type of program, Canada, provinces and territories	964
Tables 5.12.1 to 5.12.12	Estimated gross annual earnings of Class of 2000 graduates working full-time in 2002 and 2005, by level of study and type of program, Canada, provinces and territories	988
Table 5.13.1	Mobility of the Class of 2000 college graduates in the period before enrolling and two years after graduation by type of program, Canada and regions	1012
Table 5.13.2	Mobility of the Class of 2000 college graduates in the period before enrolling and two years after graduation by type of program, Canada and jurisdictions	1014
Table 6.1	Distribution of proficiency levels across all domains, by province and occupation, working population aged 16 to 65, 2003	1025
Table 6.2	Average scores for three scales of the information and communication technologies use and familiarity index, by province and occupation, working population aged 16 to 65, 2003	1027
Tables 7.1.1 to 7.1.5	Workplaces supporting training activities by industrial sector, Canada and provinces, 2003	1034
Tables 8.1.1 to 8.1.11	Adults participating in job-related training activities by occupation, Canada and provinces, 2002	1045
Tables 8.2.1 to 8.2.11	Socio-demographic characteristics of adults participating in job-related training activities by occupation, Canada and provinces, 2002	1067
Tables 8.3.1 to 8.3.11	Participation rates of adults in job-related training activities by sex and occupation, Canada and provinces, 2002	1089
Tables 8.4.1 to 8.4.11	Participation rates of adults participating in job-related training activities by age group and occupation, Canada and provinces, 2002	1111

Executive summary

There has been much talk recently about looming shortages in Canada's supply of individuals working in health occupations. To understand the degree to which the supply of workers in health occupations is meeting (and will meet) the health needs of Canadians, Health Canada—through the Advisory Committee on Health Delivery and Human Resources (ACHDHR)—contracted the Centre for Education Statistics at Statistics Canada to study the relationship between education and training and the supply of entrants into health occupations.

Using major Statistics Canada data sources related to the education and training of Canadians, the intent of this second data report from the Health Human Resources and Education Project is to provide a jurisdictional view of the information already released at the national level, as well as to provide information (at the Canada and jurisdictional levels) on additional topics that were identified in the information needs outline that were not covered in the first data report, which was released in 2007. As such, this report reveals some important information about what happens before, during and after health education. It focuses on interest in health occupations, the number of students taking and graduating from postsecondary health programs along with their socio-demographic characteristics and those of the faculty teaching these programs, the labour market experiences of recent graduates from these programs—including their mobility after graduation—as well as the ongoing participation of health workers in formal and informal training.

Interest of youth in health and health-related occupations

Youth is a time when individuals begin to make decisions about and plan for their future career by considering different occupational options. Before deciding to enrol in health and health-related programs, individuals must have certain motivations for their interest in such occupations.

There is a great deal of interest in health occupations among youth as they enter high school. In 2000, about 12% of 15-year-olds in Canada said they wanted to work in a health occupation. Despite the popularity of health occupations as a career choice at age 15, many youth changed their minds as they moved through adolescence. Around the time that they were completing high school (at age 17), only half of those who had wanted to work in health at age 15 still did so. Among Canadian youth aged 18 to 20, 8% aspired to a job in a health occupation. Although this is still a substantial number of youth—given that 5% of the labour force in 2001 worked in health occupations—more research is required to better understand why some youth change their minds about pursuing a career in health. This information will assist health human resource planners in their efforts to promote health occupations as an attractive career choice and to design effective recruitment strategies.

The percentage of youth interested in health occupations did not vary considerably by province, with this figure ranging from 10% in Saskatchewan to 16% in Newfoundland and Labrador for 15-year-olds. As was observed at the national level, interest in health occupations among youth was lower for 18- to 20-year-olds in most provinces.

About three-quarters of Canadian youth who aspired to health occupations were female. This mirrors the demographic profile of the current student body in health fields of study and suggests that the predominately female workforce in health professions will not change in the near future. In 2001, 79% of the overall labour force in health was comprised of women. Across Canada, almost all youth who professed an interest in a career in nursing were women. However, females also accounted for about three-quarters of 15-year-olds who said that they wanted to become physicians. The gender profile of youth who aspired to careers in nursing and medicine did not vary significantly across the provinces.

Canadian youth who were interested in health occupations overall were slightly less likely to come from rural areas than youth overall. Similarly, 15-year-olds who aspired to become physicians were more likely than average to come from urban areas in all provinces. This has implications for health planning for rural areas particularly in light of other studies that suggest that students with a rural background are the most likely to ultimately choose rural practice as a career. According to a recent study, achieving an adequate supply of rural physicians depends in part on ensuring the admission of an adequate number of students of rural origin to medical school.

Prior learning assessment and recognition (PLAR) of foreign credentials

Immigration is an increasingly important component of net population growth in Canada and a large proportion of immigrants make a contribution to the pool of people with postsecondary qualifications. Upon their arrival, however, internationally-trained professionals face an adjustment process both in terms of integrating into society at large as well as finding adequate work. Prior learning assessment and recognition (PLAR) is a particularly important mechanism for the recognition of the international credentials of immigrants who want to work in health occupations.

Of the 9% of immigrants who said they wanted to work in a health occupation before immigrating to Canada, about three-quarters requested an assessment of their foreign credentials with one group or another offering these services, with postsecondary institutions being among the most popular institutions. The proportion of immigrants who requested PLAR with any type of organization within their first two years in Canada was slightly lower in British Columbia (72%) and Ontario (74%) than in Quebec (81%), Alberta (83%) and all other provinces taken together (94%). In Canada, over 70% of immigrants aspiring to a health occupation that requested PLAR obtained a full or partial recognition of their credentials.

Several reasons prevented some of the immigrants from going through the PLAR process, but the most often stated reasons were that they did not know where to go or how to get their credentials checked or they believed they would not be accepted.

Full-time faculty in university health education programs

Educators may have an impact on both the capacity and the quality of health-related education programs. Of the 38,600 full-time university teachers in Canada during the 2004/2005 academic year, about one-fifth principally taught a health-related subject, and men accounted for 61% of these. The proportion of full-time university faculty teaching principally a health-related subject varied widely by province, from about 9% in Prince Edward Island to about 31% in Newfoundland and Labrador. This is not surprising given that the size and number of health education programs offered may vary widely from one province to another.

Most of the university full-time academic staff reported having a doctorate or a professional degree and, depending on their work arrangement (or on their type of appointment), some may be engaged in the practice of a health-related occupation as well as in the teaching of a health-related subject at the university. Similar to what was observed for university faculty in other fields, full-time university faculty in health are ageing and one in three continues to work after age 55. The average age varies between 44 and 51 years in all health-related subjects. This was true across the provinces.

Students in university health education programs

In 2005/2006, there were 60,900 students enrolled in health education programs at the bachelor and other undergraduate, master's and doctoral levels of study, accounting for 7% of all students at these levels. Over the previous academic year, health programs showed relatively stronger growth than overall enrolment at the bachelor and other undergraduate degrees and master's degree levels. At the doctoral level, growth rates were similar to growth rates in overall enrolment. In 2005/2006, at the bachelor and other undergraduate degrees level, the number of students enrolled in health programs increased 8% over the previous year, while the number of health students increased 9% at the master's level and 7% at the doctoral level. This enrolment growth occurred in a broader context of growing employment in the health care sector.

The total number of students enrolled in university health programs varied across the provinces. This reflects the number of health programs offered, their location and size. In 2005/2006, at the bachelor and other undergraduate degrees level, the size of health programs (in terms of total enrolment) ranged from about 300 students in Prince Edward Island to 19,300 students in Ontario. At this level of study, Quebec (13,000), Ontario (19,300), and British Columbia (3,500)—the three largest provinces in terms of population—accounted for 70% of all students enrolled in health programs in the country. However, Alberta accounted for a larger proportion (9%) of all health students in Canada than did British Columbia (7%). Similarly, Quebec, Ontario, and British Columbia accounted for about two-thirds (69%) of all health students at the master's and doctoral levels in Canada.

Graduates from health education programs and activities after study

Monitoring the number and characteristics of individuals graduating from health programs is essential as new graduates are a major source of supply of new personnel for health occupations.

In 2005, 14,600 students graduated from health education programs at the bachelor and other undergraduate, master's and doctoral levels in Canada, an 11% increase over the previous year. Not surprisingly, about two-thirds of university graduates from health education programs were coming from the three largest provinces: Quebec, Ontario and British Columbia.

Health graduates were generally more likely to have had some previous postsecondary education and / or full-time work experience and, as a result, tended to be older than graduates from other programs.

As there is a clear demand for their skills, graduates from health programs tend to make quick transitions into the labour market. Results from the first data report entitled "*Educating Health Workers: A Statistical Portrait*," released in 2007, showed that over nine in ten health graduates from the class of 2000 who had not gone on to additional studies were employed two years after graduation, most of them in a full-time position. The situation was about the same five years after graduation, ranging from about 92% of health graduates at the college level to slightly more than 99% at the doctoral level.

The success of health graduates with regard to their transitions in the labour market can indicate whether they will remain in the occupation in the long-term. Thus, information on the short-term outcomes of graduates can also lead to important information for recruitment and retention. The report finds that there was a high rate of retention of health graduates in health occupations. More than nine in ten university health graduates who reported working in a health occupation two years after graduation were still doing so three years later. The situation was about the same at the college level.

There was some variation with regard to retention in health occupations across the provinces. Among university health graduates, about 86% of them from New Brunswick reported that they were still working in a health occupation five years after graduation, while this was the case for more than 95% of health graduates in Newfoundland and Labrador (98%) and Quebec (97%). The situation was similar for college health graduates. About 82% of health graduates from the Northwest Territories reported that they were still working in a health occupation in 2005, while this was the case for around 95% of them in Prince Edward Island (95%), Nova Scotia (98%) and Saskatchewan (96%).

The higher likelihood of employment combined with higher earnings compensates for the fact that health graduates were more likely to have student debt and they tended to owe more. In spite of this, they were no more likely than their counterparts from other programs to still owe high amounts on their student loan five years after graduation.

When considering health human resource planning and management in Canada, health care planners look for ways to develop policies and strategies that attract health professionals, promote satisfying work opportunities and create and maintain stimulating, safe and secure work environments. Recruitment initiatives that encourage migration between and within provinces / territories are under way across the country.

Mobility of students and graduates from health education programs

In Canada, about 22,900 or 9% of all graduates (college and university levels) had left their province of graduation for another jurisdiction two years after graduation. Health graduates represent about 8% of this out-migration. When adding graduates from selected health-related education programs such as psychology, social work and health and physical education / fitness, this proportion rises to about 16%. This higher mobility among graduates from selected health-related programs may either be explained by mutual recognition agreements put in place by federal / provincial and territorial governments to enhance interprovincial / territorial mobility or by the non-regulated working environment for some of these occupations.

University health graduates were about three times more likely than their college counterparts to have migrated out of their province of graduation two years later. Among 2000 university health graduates, about 12% had left their province of graduation for another jurisdiction two years after graduation. This compares to about 4% for their counterparts at the college level.

With about 19% and 11% respectively, New Brunswick and Alberta gained the most overall from mobility as a result of net in-migration of university health graduates. At the university level, the only other province with gains from net overall migration is Ontario, albeit with a much lower rate (6%).

Many provinces experienced substantial net losses due to mobility of university health graduates. They include Nova Scotia (37%), Saskatchewan (19%) and British Columbia (4%). Since health education programs are concentrated in some provinces, the net loss of graduates in some of these provinces might be related to the large number of out-of-province students that come into these provinces to study. Newfoundland and Labrador did not experience any net losses due to health graduate mobility.

Further research would be needed to understand the reasons why such mobility is occurring. Some of the aspects that could be examined are: recruitment practices, type of incentives, locations of practical (clinical) placements, work conditions, and earnings. A provincial analysis of where health graduates are going would further contribute to the understanding of migration patterns among health graduates. Conversely, it would also be important to know the reasons why graduates would return to or remain in their point of origin (including, but not limited to, the lack of portability of credentials).

Adults' literacy skills and ability to use information and communications technologies (ICT)

Information and communications technology, as well as globalization, are forcing economies into a growing reliance on versatile and highly literate workers. Literacy skills are thus essential for individuals to realize their full economic and social potential. Results from the International Adult Literacy and Skills Survey (IALSS) showed that, although the ability to use information and communications technologies was substantially lower for adults in health occupations than for their counterparts in other occupations, a majority of them reached the necessary

threshold of competence in prose, document, numeracy and problem solving needed to support the acquisition of additional knowledge and skills throughout their lives.

Among adults in health occupations, scores for the perceived usefulness of computers and acceptable levels of proficiency in prose, document, numeracy and problem solving varied widely across provinces and territories

Continuing education in the workplace

The ability and willingness of adults to continue learning throughout their lives has been identified as a critical element in Canada's economic future. The need for new skills in the economy has had a profound impact on jobs in most, if not all, industries and occupations. With advances in health care knowledge and technology, it is particularly important that adults working in health occupations be able to maintain and upgrade their skills and knowledge through continuing education.

Traditionally, many of these new skills would have been provided by "new" workers, both young adults and immigrants entering the labour force. However, the demographic reality is that smaller cohorts of young workers will be entering the workforce in coming years and, as the work force ages, the potential for skill shortages grows. The "upskilling" of workers already in the labour force is widely seen as an important measure to meet these needs.

Recognizing this need for ongoing learning, employers often encourage and support continuing education. This is particularly true in health occupations where regulatory frameworks often require ongoing maintenance or upgrading of skills.

In 2003, six in ten workplaces in the health care and social assistance sector supported training activities for their employees. Not surprisingly, larger workplaces or workplaces which introduced innovations during the year were more likely than others to support training activities. Overall, about 60% of adults in health occupations participated in formal job-related training in 2002, twice the rate observed for all other occupations.

Introduction

In Canada and internationally, a great deal of work is being done to monitor and understand the degree to which the supply of workers in health occupations is meeting (and will meet) the health needs of the population. A common theme throughout this work is the need for new and improved data for monitoring health human resources and to build models for health planning. In Canada, a health human resources (HHR) strategy has been developed from the work done by the Commissioner Roy Romanow, the Senate Committee chaired by Michael Kirby as well as both the 2003 First Ministers' Accord on Health Care Renewal and the First Ministers' Meeting (FMM) 2004 communiqué.

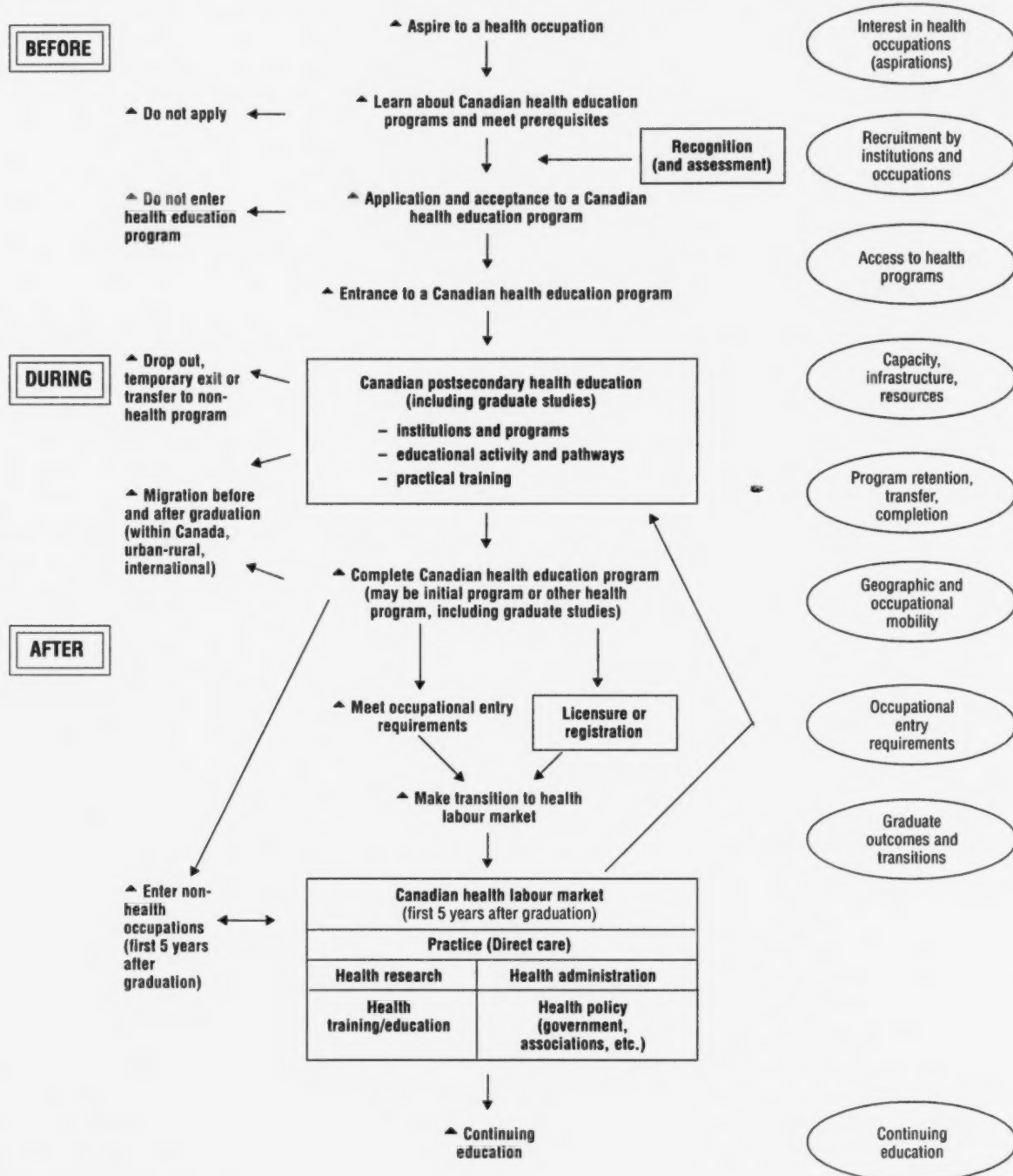
The issues in health human resources management are complex. Teams at the national, provincial / territorial and sub-provincial / territorial levels are working to understand the factors that influence health human resources management in Canada.

In 2004, as part of the work coordinated through the Advisory Committee on Health Delivery and Human Resources (ACHDHR), Health Canada contracted the Centre for Education Statistics (CES) at Statistics Canada to study the interface between education and training and the supply of entrants into health occupations. Through research and consultation, Statistics Canada was asked to investigate the availability of data to measure the infrastructure of health education programs in public and private educational institutions and the flow of individuals through these programs and into health and health-related occupations.

The first stage of the HHRE project, which focused solely on the role of the education system in overall health human resources management, was to identify the information needs related to HHRE. This was done through consultations with a variety of stakeholders during 2005. During this stage, an HHRE conceptual framework (see Figure 1.1) was developed to illustrate the generic flows of individuals through educational institutions and into the health labour market (refer to Appendix 8 for more information on the HHRE conceptual framework). The information needs collected during the consultations have been incorporated into this framework and published in "Health Human Resources and Education: Outlining Information Needs" (Allen et. al. 2006).

The second stage of this project was to present detailed information that would address some of the questions identified during the HHRE consultation process at the national level. As such, a report entitled "Educating Health Workers: A Statistical Portrait" was released in August 2007 (Allen et. al. 2007).

Figure 1.1
Health human resources and education (HHRE) conceptual framework



Following a study presented to Health Canada which outlined data availability and gaps on some issues raised during the 2005 nation-wide consultations, this second data report marks the last stage of the HHRE project. The purpose of this second data report is to provide a jurisdictional view of the information already released at the national level, as well as to provide information (at the Canada and jurisdictional levels) on some of the topics from the information needs outline that were not covered in the first data report (Allen et. al. 2007).

Given that both education and health care are managed by the provinces and territories in Canada, much of the HHRE information is required by jurisdiction. Information is also needed for specific occupation and personal characteristics (sex, age, aboriginal identity, educational attainment, etc.) as some issues relate to specific populations only. This level of detail is not being supported by all surveys at Statistics Canada and, depending on the sample size and the data quality, information may not be available for all jurisdictions. Health occupations may also need to be aggregated.

The first sections of this report present information related to what happens before entry into health education programs, which encompass questions related to interest in health occupations. Questions on recognition of foreign credentials by educational institutions are also addressed in this section.

This is followed by information on the period "during" health education, which covers questions about educators teaching in health education programs and characteristics of students enrolled in such programs.

The final sections of the report encompass information about the period immediately following graduation. They include basic information on the characteristics of graduates from health education programs and detailed information on their transitions into the labour market, including work activity, earnings and mobility. Also presented is information on adult literacy skills and ability of adults to use information and communications technologies, as well as on the supply of continuing education in workplaces and participation of adults in such training.

Data quality indicators

Data collected from sample surveys are presented in the tables along with data quality indicators (standard errors), which will help in the interpretation of the different survey results.

Standard errors are used to express the degree of uncertainty associated with sampling error and measurement error. The standard error can be used to construct a confidence interval, which provides a way of making inferences about the population means and proportions in a manner that reflects the uncertainty associated with sample estimates. A 95% confidence interval is used in this report and represents a range of plus or minus about two standard errors around the sample average. Using this confidence interval it can be inferred that the population mean or proportion would lie within the confidence interval in 95 out of 100 replications of the measurement, using different samples randomly drawn from the same population.

Thresholds related to the reliability of the estimate (denoted by "E" or "F") are a function of the standard error as measured by the Coefficient of Variation or CV. Estimates are suppressed (shown by F) where the CV is above 33.3% of the estimate. Where the CV is from 16.6% to 33.3%, data reliability is noted with an "E."

Otherwise stated, comparisons of estimates in the text are considered to be reliable if differences are statistically significant with a 95% level of confidence.

As explained above, statistical significance is determined by mathematical formulas and considers issues such as sampling. It is a matter of interpretation as to whether a difference in results has policy significance. There are situations where a statistically significant difference may have little policy significance (e.g., the difference is very small). There are also situations where a difference that is perceived to have policy significance may not in fact have statistical significance¹.

1. This has been adapted from Council of Ministers of Education, Canada. 2005. *School Achievement Indicators Program: Science III 2004*.